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## **Ex-post evaluation of an environmental tender: Legacy of the 2008 Lower Burdekin Water Quality Tender**

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National  
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# Ex-post evaluation of an environmental tender: Legacy of the 2008 Lower Burdekin Water Quality Tender

Romy Greiner

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4 February 2016

# Purpose of the ex-post evaluation

- Explore “legacy” of the Tender: enduring benefits for water quality
  - Were successful bids implemented? Do they persist?
  - Were unsuccessful bids implemented?
  - Did Tender generate additional investment?
  - What were experiences of Tender participants?

# Research area: “Lower Burdekin”

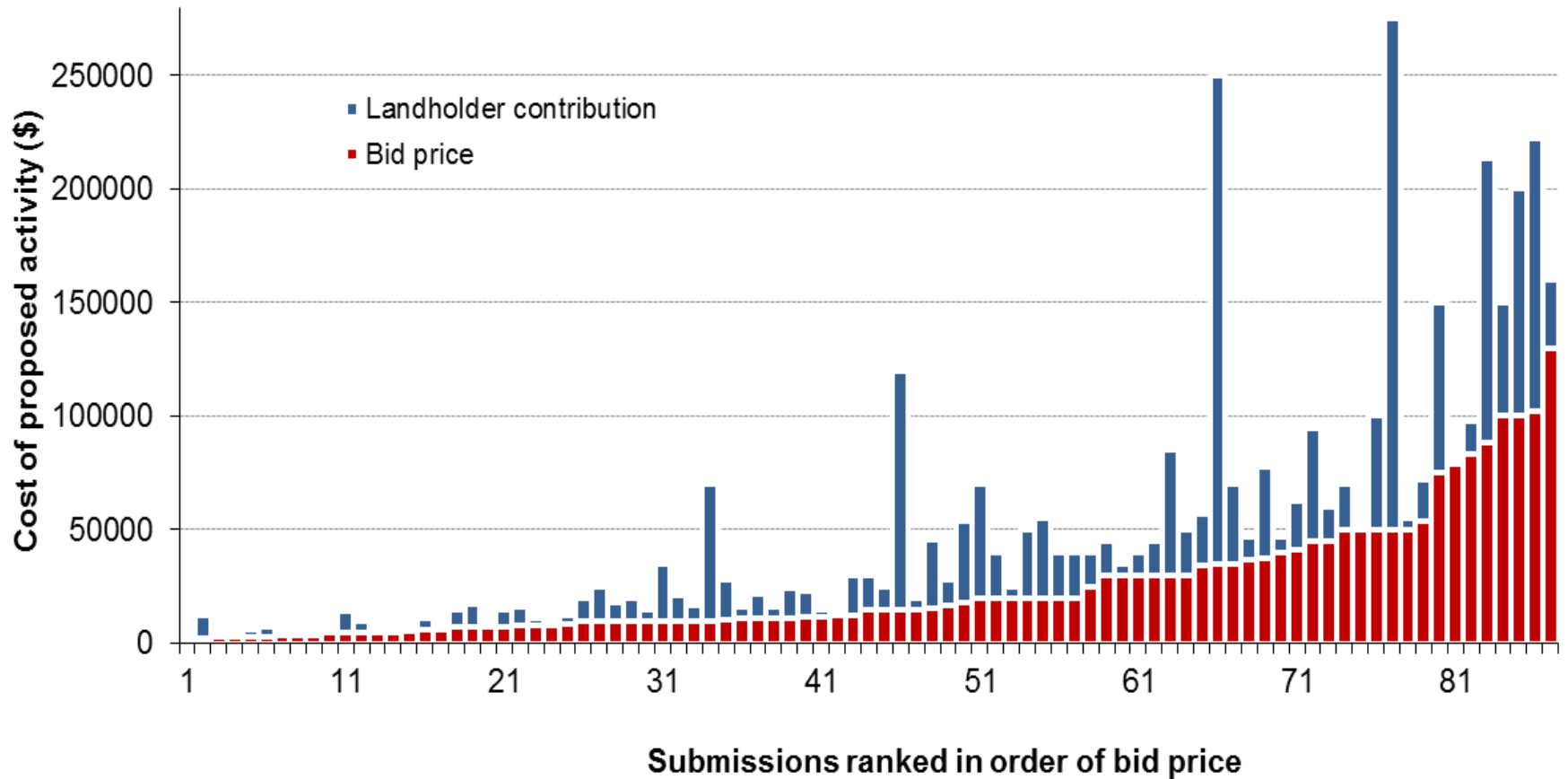


# Background: 2008 WQ Tender

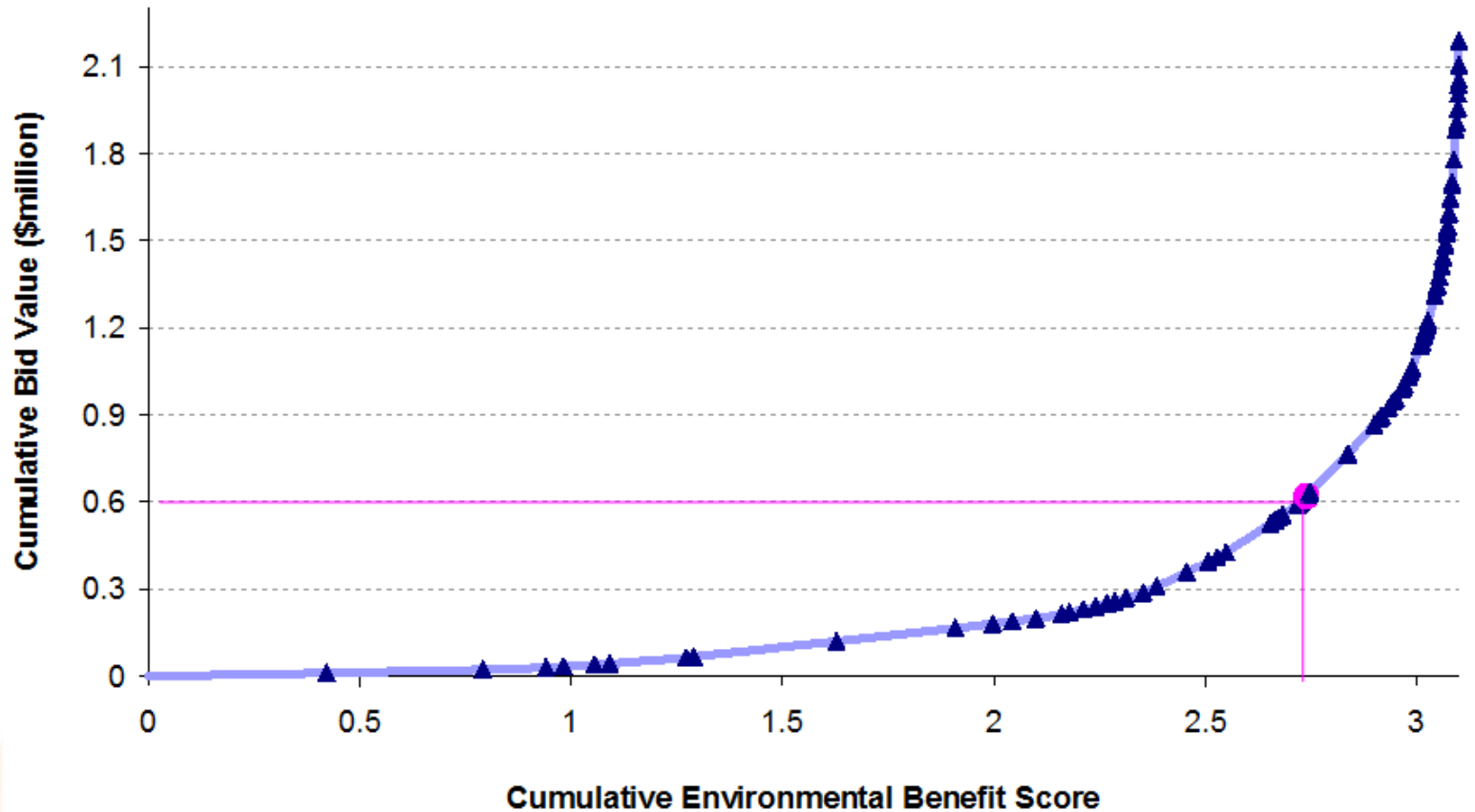
- Funding scope: approx. \$600,000
- Objective: Reduce sediments, nutrients, chemical export
- Land uses: sugar cane and grazing
- 87 bids from 64 applicants
- Proposed activities
  - Infrastructure: irrigation, recycle pits
  - Machinery, tools: precision fertilizer applicators & seeders, reduced-till
  - Improved information: GIS
- Bids: range from \$1,500 to \$130,000; mean \$25,131
- Cumulative ask: \$2.2 million

Greiner et al., 2008; Hailu et al., 2008; Rolfe et al., 2007a; Rolfe et al., 2011a; Rolfe et al., 2008; Rolfe et al., 2007b; Rolfe et al., 2007c; Windle et al., 2008

# Background: 2008 WQ Tender



# Background: 2008 WQ Tender



# Ex-post evaluation: method

- Survey of 2008 Tender participants
- Sample frame: contact data base of 64 landholders
- Information letter followed by telephone contact
- Questionnaire with structured and open questions
- Mixed-mode interviews: telephone, face-to-face

# Ex-post evaluation: respondents

	Sample frame (Tender)	Sample (this research)	Survey represent- ation (%)
Number of bids	87	59	68%
Number of Tender participants	64	42	66%
One bid - successful	20	15	75%
One bid - not successful	29	17	59%
Multiple bids - all successful	1	0	0%
Multiple bids - one successful	10	7	70%
Multiple bids - none successful	4	3	75%

# Ex-post evaluation: representative sample of bids

	Value of proposed activity (\$)		Value of bid (\$)	
	Tender (N=87)	Sample (N=59)	Tender (N=87)	Sample (N=59)
Average	\$49,310	\$51,550	\$25,131	\$24,813
Median	\$28,000	\$25,000	\$14,800	\$15,000
Minimum	\$2,700	\$3,000	\$1,500	\$1,500
Maximum	\$275,000	\$275,000	\$130,000	\$102,091

# Successful bids: completion rate

Types of work	Count	Fully completed	Partially completed	Not implemented
New recycle pit	10	70%	10%	20%
Recycle pit modification	5	100%		
Irrigation system	2	50%		50%
Machinery	7	100%		
Total	24	83%	4%	13%

- Reasons for non-completion:
  - Incorrect cost projections in proposals
  - Additional research showed proposal was not suitable

# Unsuccessful bids: completion rate

Types of work	Count	Fully completed	Partially completed	Not implemented
New recycle pit	9	67%		33%
Recycle pit upgrade/extension	6	50%	50%	
Irrigation system	2	100%		
Other infrastructure	4	50%		50%
Machinery	9	89%		11%
Other	5	100%		
Total	35	74%	9%	17%

- Reasons for completion:
  - Funding received in subsequent NRM programs
  - Perceived private benefit

# Changes to knowledge and farming systems (proportion of respondents)

Response	Changed understanding of 'agriculture and water quality'	Changed land management and/or farming system
Number of responses	37	39
"No"	51%	44%
"Yes"	46%	56%
"Unsure"	3%	0%
Total	100%	100%

Fisher's exact test found no association between respondents' success in the Tender and stated impact on understanding, but funding success was significantly positively associated with stated change of the farming system ( $p=0.001$ ).

# Additionality effect: participation

(proportion of respondents)

Response	"First" water quality improvement action	"First" NRM program participation
"No"	31%	21%
"Yes"	67%	79%
"Unsure"	2%	0%
Total	100%	100%

# Post-tender WQ and NRM action

(proportion of respondents, by category)

Category: Success in the Tender	Subsequently undertook water quality measures (% category)	Subsequently undertook other NRM or conservation activities (% category)	Total (count)
One successful proposal	93%	21%	14
One unsuccessful proposal	82%	41%	17
Multiple proposals, one successful	100%	14%	7
Multiple unsuccessful proposals	67%	33%	3
Total	88%	29%	41

The rate of subsequent activity was not statistically associated with success in the Tender.

# Post-tender WQ / NRM investment

Success in the Tender	Did <u>not</u> seek further NRM funding	Sought further NRM funding	Total
One successful proposal	3	11	14
One unsuccessful proposal	4	13	17
Multiple proposals, one successful	0	7	7
Multiple unsuccessful proposals	2	1	3
Total	9	32	41

There was no statistically significant association between success in the Tender and participation in subsequent funding programs.

Among subsequent actions and investments by respondents, additional recycle pits featured frequently, and machinery to assist with precision agriculture. The size and type of investment was not statistically associated with respondents' success in the Tender.

# Summary

- High level of persistence of investment: Benefits to water quality continue to accrue beyond the 5-year period, which was considered in the assessment metric used to rate and rank proposals to the Tender.

# Summary

- Tender failed to achieve its anticipated allocative effectiveness (total pollution abated):
  - Some major projects which had been approved for funding did not proceed. While this resulted in cost savings, it also resulted in forgone water quality improvements. The principal reason for this was cost under-estimation during proposal preparation.
  - Some projects were not fully implemented.

# Summary

- The Tender achieved additionality and crowding-in effects, which improved the efficiency of the investment:
  - Incentivised the participation of many farmers who had not previously done anything about water quality or participated in any NRM programs;
  - Effected learning about the impacts of agriculture on water quality—irrespective of success of proposals—and thereby generated intrinsic motivation for many Tender participants to be wanting to do more about improving water quality;
  - Sparked a series of subsequent investments into water quality improvements, many of which were entirely funded by the farmers while others were undertaken with the assistance of other NRM funding programs; and
  - Triggered and/or facilitated farming-systems change to more environmentally benign practices in some instances.

Thank you to NESP, John Rolfe, Scott Crawford and NWDT staff, research participants  
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